AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. All claims currently being amended are shown with deleted text struckthrough or double bracketed and new text underlined. Additionally, the status of each claim is indicated in parenthetical expression following the claim number.

WHAT IS CLAIMED IS:

1. (Currently Amended) An algorithm to aid in the selection of a treatment plan for vision correction in a patient's eye, comprising:

obtaining selected diagnostic input data types about the patient's eye;

executing first software instructions which ~~parameterizing~~ parameterize the input data to classify the patient's eye into one of a predetermined plurality of classification sets;

executing second software instructions which ~~determining~~ determine a viable plurality of treatment algorithms for potentially correcting the patient's vision based upon the classification;

executing third software instructions which ~~presenting~~ present a respective plurality of treatment plans based upon the treatment algorithms for prospective selection of one of the treatment plans[[.]]; and

executing fourth software instructions which recommend a preferred treatment plan from the plurality of treatment plans.

2. (Currently Amended) The algorithm of claim 1, further comprising executing fifth software instructions which selectively ~~modifying~~ modify a default parameter of at least one of the treatment algorithms and ~~presenting~~ present a modified treatment plan for prospective selection of one of the treatment plans.

3. (Original) The algorithm of claim 1, wherein the input data types comprise one or more of wavefront data, topography data, pachymetry data, and refraction data.

4. (Currently Amended) The algorithm of claim 3, wherein the classifying step comprises executing sixth software instructions which ~~determining~~ determine whether the eye is one of a) a virgin eye or a previously treated eye, b) a regular eye or an irregular eye, and c) a myopic eye with or without mixed astigmatism or a hyperopic eye with or without mixed astigmatism.

5. (Original) The algorithm of claim 1, wherein the input data types include diagnostic wavefront data and diagnostic corneal data, the data of each of which is stored in a different, user selectable file.

6. (Currently Amended) A method for aiding the selection of a treatment plan for correcting vision in a patient's eye, comprising:

obtaining selected input diagnostic data about the patient's eye;

executing first software instructions which ~~analyzing~~ analyze the data to determine a plurality of potentially useable treatment algorithms from an equal or larger number of available treatment algorithms, and ~~processing~~ process said plurality of potentially useable treatment algorithms, wherein said available treatment algorithms utilize one or more default parameters;

executing second software instructions which ~~presenting~~ present for review a plurality of treatment plans corresponding to said plurality of potentially useable treatment algorithms;

executing third software instructions which selectively ~~modifying~~ modify the one or more default parameters and other treatment parameters;

executing fourth software instructions which optimizes at least one modified parameter; and

executing fifth software instructions which ~~re-processing~~ re-process said plurality of potentially useable treatment algorithms using the modified parameters; and

executing sixth software instructions which ~~re-presenting~~ re-present for further review the plurality of treatment plans corresponding to said plurality of potentially useable treatment algorithms.

executing seventh software instructions which recommend a preferred treatment plan from the plurality of treatment plans.

7. (Currently Amended) The method of claim 6, further comprising executing eighth software instructions which ~~selecting~~ select one of the treatment plans.

8. (Original) The method of claim 7, further comprising engaging a therapeutic laser ablation component of a vision correction system that is adapted to apply the selected treatment plan to the patient's eye.

9. (Original) The method of claim 6, wherein said treatment plans comprise data relating to at least some of a laser ablation spot size, a laser ablation shot placement, a laser

ablation shot sequence, a laser shot file, a simulated post-operative wavefront map, a simulated post-operative topography map, a simulated ablation profile, an axial keratometric map, corneal pachymetry, optical zone dimension, a manifest refraction value, a target refraction value, higher-order aberration information, a residual stromal tissue depth, and a vision metric.

10. (Currently Amended) The method of claim 9, further comprising executing ninth software instructions which selectively ~~sorting~~ sort at least some of the data for each of the treatment plans according to a user preferred criteria including at least one of the target refraction, the residual stromal depth, and the optical zone dimension.

11. (Currently Amended) The method of claim 10, further comprising executing tenth software instructions which ~~optimizing~~ optimize at least one of the user preferred criteria.

12. (Currently Amended) The method of claim 10, further comprising executing eleventh software instructions which selectively ~~presenting~~ present the sorted data for review by the user.

13. (Currently Amended) The method of claim 6, wherein the step of providing input diagnostic data comprises executing twelfth software instructions which ~~providing~~ provide at least one of wavefront data only, topography data only, wavefront and topography data with or without corneal pachymetry data, and one of the preceding data plus other selected data.

14. (Original) The method of claim 6, wherein said available treatment algorithms comprise at least two algorithms selected from a group including a myopia treatment only, a hyperopia treatment only, a myopia treatment with astigmatism, a hyperopia treatment with astigmatism, a lower-order aberration correction treatment, a higher-order aberration correction treatment, a higher-order corneal aberration treatment, a re- treatment, a spherical corrective treatment, an aspherical corrective treatment, a LASIK treatment, a LASEK treatment, a PRK treatment, a nomogram adjusted treatment, and a customized treatment.

15. (Original) The method of claim 6, wherein said one or more default parameters represent a value for parameters including at least one of an optical zone, a corneal flap thickness, and another parameter that influences the calculation of the algorithms.

16. (Original) The method of claim 6, further comprising providing a display device displaying a graphical user interface (GUI) for use by a user.

17. (Currently Amended) The method of claim 6, further comprising executing thirteenth software instructions which ~~saving~~ save the plurality of re-processed treatment plans on a device readable medium.

18. (Currently Amended) The method of claim 6, wherein the sorting step comprises executing fourteenth software instructions which ~~optimizing~~ optimize at least one of the user preferred criteria and sorting based upon said optimization.

19. (Original) The method of claim 16, wherein displaying said GUI further comprises selectively displaying a data check screen that contains summary data of the selected treatment plan.

20. (Original) The method of claim 19, wherein the summary data includes one or more of patient identifying information, selected treatment plan, manifest refraction, objective refraction for a given pupil diameter, pre- and targeted post-operative K values, pre- and targeted post-operative Q values, optical zone size, treatment zone, number of ablation shots and treatment time, maximum ablation depth, central ablation depth, and residual stromal pachymetry for a specified corneal flap thickness.

21. (Currently Amended) The method of claim 6, wherein the processing step further comprises executing fifteenth software instructions which ~~utilizing~~ utilize at least one of rotational eye-tracking data and ~~microlceratometric~~ microkeratometric data.

22. (Currently Amended) The method of claim 6, further comprising ~~automatically recommending~~ executing sixteenth software instructions which present to the user the [[a]] preferred treatment plan from the plurality of treatment plans.

23. (Currently Amended) The method of claim 6, wherein the analyzing step comprises executing seventeenth software instructions which ~~identifying~~ identify an allowable limit parameter for each of the available treatment algorithms and ~~determining~~ determine the potentially useable treatment algorithms based upon whether the allowable limit parameters are exceeded.

24. (Original) The method of claim 16, wherein the use of the GUI comprises user options selected from a group comprising patient selection, default value adjustment, displaying processing software information, inputting patient data, and creating display screen headers.

25. (Original) The method of claim 16, wherein the display of the GUI includes color coding of the treatment plans, selective display of rotational eye-tracking information, selective display of microkeratometric information, minimization/maximization of data presentation size, a warning message based on a user selected parameter modification, saving of treatment plan parameters to a selected storage medium, and other parametric monitoring.

26. (Original) The method of claim 6, wherein the plurality of treatment plans include a customized treatment plan that reduces higher order wavefront aberrations and a non-customized treatment plan that improves lower order aberrations.

27. (Currently Amended) The method of claim 26, wherein the non-customized treatment plan comprises data relating to ~~is based~~, at least in part, [[on]] a non-normalized K-reading value of the patient's eye.

28. (Currently Amended) The method of claim 26, wherein the non-customized treatment plan comprises data relating to ~~is based~~, at least in part, [[on]] an aspheric corneal shape factor, Q, of the patient's eye.

29. (Currently Amended) The method of claim 26, wherein each of the treatment plans comprises data relating to ~~is based~~, at least in part, [[on]] a prospective residual stroma thickness value.

30. (Currently Amended) The method of claim 29, wherein the re-processing includes estimating a prospective residual stroma thickness value ~~is an estimated value~~.

31. (Currently Amended) The method of claim 29, wherein the re-processing includes calculating a prospective residual stroma thickness value ~~is a calculated value~~.

32. (Currently Amended) A system used for planning a treatment for vision correction in a patient's eye, comprising:

means for receiving a diagnostic input data about the patient's vision, for analyzing the input data and determining a plurality of potentially useable treatment algorithms from an equal or larger number of available treatment algorithms, and for processing said potentially useable treatment algorithms based upon the input data and one or more pre-selected algorithm default parameters;

means for displaying a plurality of treatment plans corresponding, respectively, to the plurality of potentially useable treatment algorithms, for selectively modifying the algorithm

default parameters and other defined treatment influencing parameters, for recommending a preferred treatment plan from a plurality of modified treatment plans, and for displaying [[a]] the respective plurality of modified treatment plans, operatively connected to said receiving means.

33. (Original) The system of claim 32, wherein the display means is further adapted for selecting a preferred treatment plan.

34. (Original) The system of claim 33, further comprising a device readable storage medium that can selectively store the plurality of modified treatment plans including the selected preferred treatment plan:

35. (Original) The system of claim 34, further comprising a therapeutic laser ablation component in operative communication with said storage medium and adapted to apply the selected preferred treatment plan to the patient's eye.

36. (Cancelled)

37. (Cancelled)

38. (Original) The system of claim 32, wherein the diagnostic input data is selected from a group including at least one of wavefront data only, topography data only, wavefront and topography data with or without corneal pachymetry data, and one of the preceding data plus other selected algorithm influencing data.

39. (Original) The system of claim 32, wherein the larger number of available treatment algorithms is selected from a group of at least two relating to a myopia treatment only, a hyperopia treatment only, a myopia treatment with astigmatism, a hyperopia treatment with astigmatism, a lower-order aberration correction treatment, a higher-order aberration, correction treatment, a re-treatment, a spherical corrective treatment, an aspherical corrective treatment, a LASIK treatment, a LASEK treatment, a PRK treatment, a nomogram adjusted treatment, and a customized treatment.

40. (Original) The system of claim 32, wherein the receiving means comprises a software-driven calculation module.

41. (Original) The system of claim 32, wherein the display means comprises a display device displaying a multi-level GUI.

42. (Original) The system of claim 34, wherein the device readable storage medium comprises one of a floppy disk, a CD, a DVD, a computer hard drive, and electromagnetic data storage means.

43. (Original) The system of claim 35, wherein the therapeutic laser ablation component comprises a laser system adapted for photoablation of corneal tissue operatively connected to an eye tracker component.

44. (Currently Amended) The system of claim 32, wherein the receiving and display means, respectively, are programmed to sort and display ~~further adapted for sorting and displaying~~ a plurality of user defined criteria for each of the calculated, treatment plans.

45. (Currently Amended) The system of claim 41, wherein the display means is programmed to ~~multi-level GUI includes a data check~~ display a data check screen showing summary data of the selected treatment plan.

46. (Currently Amended) The system of claim 41, wherein the display means is programmed to display ~~multi-level GUI includes~~ a start-up navigation screen.

47. (Currently Amended) The system of claim 46, wherein the display means is programmed to display ~~further including~~ a screen for viewing user modifiable preference and default settings.

48. (Currently Amended) The system of claim 46, wherein the display means is programmed to display ~~further including~~ a screen for viewing a diagnostic data file.

50. (Currently Amended) The system of claim 46, wherein the display means is programmed to display ~~further including~~ a screen for viewing patient information.

51. (Currently Amended) The system of claim 46, wherein the display means is programmed to display ~~further including~~ a screen for viewing a treatment plan calculation.

52. (Currently Amended) The system of claim 51, wherein the display means is programmed to display ~~further including~~ a screen for simultaneously viewing at least two treatment plan calculations.

53. (Currently Amended) The system of claim 46, wherein the display means is programmed to display ~~further including~~ a data check screen.